THE CLAIMS

1. (Currently Amended) A stereoscopic video encoding apparatus that supports multi-display modes based on user display information, comprising:

a field separating means for separating right and left-eye input images into an odd field of the left-eye image (LO), even field of the left-eye image (LE), odd field of the right-eye image (RO), and even field of the right-eye image (RE);

an encoding means for generating four streams for right and left-eye images by encoding the fields separated in the field separating means by performing motion and disparity compensation, the four streams corresponding to a video to be output on a display of a user;

a receiving means for receiving the user display information, wherein the user display information corresponds to display capabilities of the display;

a multiplexing means for multiplexing encoded streams for only essential fields among the four encoded streams received from the encoding means, based on the user display information, such that only the essential fields necessary to display the video on the display of the user are multiplexed for transmittal to the display of the user; and

wherein the encoding means determines a field of a sub-layer of the four streams of right and left-eye images based on disparity estimation of a main layer of the four streams of right and left-eye images and motion estimation of an enhancement layer of the main layer.

2. (Previously Presented) The stereoscopic video encoding apparatus as recited in claim 1, wherein the encoding means forms a main layer with the odd field of the left-eye image (LO) and the even field of the right-eye image (RE), a first sub-layer with the even field of the left-eye image (LE), and a second sub-layer with the odd field of the right-eye image (RO).

3. (Previously Presented) The stereoscopic video encoding apparatus as recited in claim 2, wherein the encoding means forms a base layer of the main layer with the odd field of the left-eye image (LO) and forms an enhancement layer of the main layer with the even field of the right-eye image (RE), and then performs encoding using estimation for motion and disparity compensation.

4. (Previously Presented) The stereoscopic video encoding apparatus as recited in claim 3, wherein the first sub-layer performs the estimation for motion compensation based on the information related to the base layer, and performs the estimation for disparity compensation based on the information related to the enhancement layer.

5. (Previously Presented) The stereoscopic video encoding apparatus as recited in claim 3, wherein the second sub-layer performs the estimation for disparity compensation based on the information related to the base layer and the first sub-layer, and performs the estimation for motion compensation based on the information related to the enhancement layer.

6. (Previously Presented) The stereoscopic video encoding apparatus as recited in claim 1, wherein the encoding means forms a main layer with the odd field of the left-eye image (LO), a first sub-layer with the even field of the right-eye image (RE), a second sub-layer with the even field of the left-eye image (LE), and a third sub-layer with the odd field of the right-eye image (RO).

7. (Original) The stereoscopic video encoding apparatus as recited in claim 6, wherein the main layer performs the estimation for motion compensation based on the information related to the main layer.

8. (Original) The stereoscopic video encoding apparatus as recited in claim 6, wherein the first sub-layer performs the estimation for motion compensation based on the information related to the first sub-layer, and performs the estimation for disparity compensation based on the information related to the main layer.

9. (Original) The stereoscopic video encoding apparatus as recited in claim 6, wherein the second sub-layer performs the estimation for motion compensation based on the information related to the main layer and the second sub-layer.

10. (Previously Presented) The stereoscopic video encoding apparatus as recited in claim 6, wherein the third sub-layer performs the estimation for motion compensation based on

the information related to the first sub-layer, and performs the estimation for disparity compensation based on the information related to the main layer and the second sub-layer.

11. (Original) The stereoscopic video encoding apparatus as recited in claim 1, wherein the user display information includes a three-dimensional field shuttering display, a three-dimensional frame shuttering display, and a two-dimensional display.

12. (Original) The stereoscopic video encoding apparatus as recited in claim 1, wherein the multiplexing means multiplexes the odd field of the left-eye image (LO) and the even field of the right-eye image (RE), in case where the user display information indicates a three-dimensional field shuttering display.

13. (Original) The stereoscopic video encoding apparatus as recited in claim 1, wherein the multiplexing means multiplexes the odd field of the left-eye image (LO), the even field of the left-eye image (LE), the odd field of the right-eye image (RO), and the even field of the right-eye image (RE), in case where the user display information indicates a three-dimensional frame shuttering display.

14. (Original) The stereoscopic video encoding apparatus as recited in claim 1, wherein the multiplexing means multiplexes the odd field of the left-eye image (LO), and even field of the left-eye image (LE), in case where the user display information indicates a two-dimensional display.

15. (Currently Amended) A stereoscopic video decoding apparatus that supports multi-display modes based on [[a]]user display information, comprising:

an inverse-multiplexing means for inverse-multiplexing a supplied bit stream into multiple encoded streams corresponding to essential fields among four encoded streams ~~to be suitable for~~based on the user display information, wherein the bit stream is comprised of only the essential fields necessary to display the video on a display of a user;

a decoding means for decoding the multiple encoded streams inverse-multiplexed in the inverse-multiplexing means by performing estimation for motion and disparity compensation;

a display means for displaying an image decoded in the decoding means based on the user display information; and

a receiving means for receiving the user display information, wherein the user display information corresponds to display capabilities of the display means;

wherein the supplied bit stream includes a field of a sub-layer of the four encoded streams that is based on disparity estimation of a main layer of the four encoded streams and motion estimation of an enhancement layer of the main layer.

16. (Original) The stereoscopic video decoding apparatus as recited in claim 15, wherein the user display information includes a three-dimensional field shuttering display, a three-dimensional frame shuttering display, and a two-dimensional display.

17. (Previously Presented) The stereoscopic video decoding apparatus as recited in claim 15, wherein the inverse-multiplexing means inverse-multiplexes the bit stream into the odd field of the left-eye image (LO) and the even field of the right-eye image (RE), in case where the user display information indicates a three-dimensional field shuttering display.

18. (Previously Presented) The stereoscopic video decoding apparatus as recited in claim 15, wherein the inverse-multiplexing means inverse-multiplexes the bit stream into the odd field of the left-eye image (LO), even field of the left-eye image (LE), odd field of the right-eye image (RO), and the even field of the right-eye image (RE), in case where the user display information indicates a three-dimensional frame shuttering display.

19. (Previously Presented) The stereoscopic video decoding apparatus as recited in claim 15, wherein the inverse-multiplexing means inverse-multiplexes the bit stream into the odd field of the left-eye image (LO), and even field of the left-eye image (LE), in case where the user display information indicates a two-dimensional display.

20. (Previously Presented) The stereoscopic video decoding apparatus as recited in claim 15, wherein the display means displays an image that is decoded from the odd field of the left-eye image (LO), and an image that is decoded from the even field of the right-eye image

(RE) at predetermined time intervals, in case where the user display information indicates a three-dimensional field shuttering display.

21. (Previously Presented) The stereoscopic video decoding apparatus as recited in claim 15, wherein the display means displays an image that is decoded from the odd field of the left-eye image (LO), an image decoded from the even field of the left-eye image(LE), an image decoded from the odd field of the right-eye image (RO), and an image decoded from the even field of the right-eye image (RE) at predetermined time intervals, in case where the user display information indicates a three-dimensional frame shuttering display.

22. (Previously Presented) The stereoscopic video decoding apparatus as recited in claim 15, wherein the display means displays an image that is decoded from the odd field of the left-eye image (LO), and an image decoded from the even field of the left-eye image (LE) simultaneously, in case where the user display information indicates a two-dimensional display.

23. (Currently Amended) A method for encoding a stereoscopic video image that supports multi-display mode based on [[a]]user display information, comprising the steps of:

a) receiving the user display information, wherein the user display information corresponds to display capabilities of the display;

[[a]]b) separating right and left-eye input images into an odd field of the left-eye image (LO), an even field of the left-eye image (LE), an odd field of the right-eye image (RO), and an even field of the right-eye image (RE);

[[b]]c) generating four streams for right and left-eye images by encoding the fields separated in the above step a) by performing estimation for motion and disparity compensation, the four streams corresponding to a video to be output on a display of a user;

[[c]]d) multiplexing encoded streams for only essential fields among the four encoded streams encoded in the step [[b]]c) based on the user display information, such that only the essential fields necessary to display the video on the display of the user are multiplexed for transmittal to the display of the user; and

wherein a field of a sub-layer of the four streams for right and left-eye images is determined based on disparity estimation of a main layer of the four streams for right and left-eye images and motion estimation of an enhancement layer of the main layer.

24. (Currently Amended) A method for decoding a stereoscopic video image that supports multi-display mode based on [[a]]user display information, comprising the steps of:

a) receiving the user display information, wherein the user display information corresponds to display capabilities of the display;

[[a]]b) inverse-multiplexing a supplied bit stream into multiple encoded streams corresponding to essential fields among four encoded streams to be suitable for the user display information, wherein the bit stream is comprised of only the essential fields necessary to display the video on a display of a user;

[[b]]c) decoding the multiple encoded streams inverse-multiplexed in the step

a) by performing estimation for motion and disparity compensation;

[[c]]d) displaying an image decoded in the step [[b]]c) based on the user display information; and

wherein a field of a sub-layer of the four encoded streams is determined based on disparity estimation of a main layer of the four encoded streams and motion estimation of an enhancement layer of the main layer.

25. (Currently Amended) A computer-readable recording medium provided with a microprocessor for recording a program that implements a stereoscopic video encoding method supporting multi-display modes based on [[a]]user display information, comprising the steps of:

a) receiving the user display information, wherein the user display information corresponds to display capabilities of the display

[[a]]b) separating right and left-eye input images into an odd field of the left-eye image(LO), an even field of the left-eye image (LE), an odd field of the right-eye image(RO), and an even field of the right-eye image (RE);

[[b]]c) generating four streams for right and left-eye images by encoding the fields separated in the above step a) by performing estimation for motion and disparity compensation, the four streams corresponding to a video to be output on a display of a user;

[[c]]d) multiplexing encoded streams for only essential fields among the four encoded streams encoded in the step [[b]]c) based on the user display information, such that only the essential fields necessary to display the video on the display of the user are multiplexed for transmittal to the display of the user; and

wherein a field of a sub-layer of the four streams for right and left-eye images is determined based on disparity estimation of a main layer of the four streams for right and left-eye images and motion estimation of an enhancement layer of the main layer.

26. (Currently Amended) A computer-readable recording medium provided with a microprocessor for recording a program that implements a stereoscopic video decoding method supporting multi-display modes based on [[a]]user display information, comprising the steps of:

a) receiving the user display information, wherein the user display information corresponds to display capabilities of the display;

[[a]]b) inverse-multiplexing a supplied bit stream into multiple encoded streams corresponding to essential fields among four encoded streams to be suitable for the user display information, wherein the bit stream is comprised of only the essential fields necessary to display the video on a display of a user;

[[b]]c) decoding the multiple encoded streams inverse-multiplexed in the step a) by performing estimation for motion and disparity compensation;

[[c]]d) displaying an image decoded in the step [[b]]c) based on the user display information; and

wherein a field of a sub-layer of the four encoded streams is determined based on disparity estimation of a main layer of the four encoded streams and motion estimation of an enhancement layer of the main layer.